LEED During Design Development

LEED Responsibilities

- No one person can be expert in all disciplines
- SAS: Each technical discipline is responsible for their assigned credits (SAS responsibility spreadsheet)
  - Site Development gets Waste Mgt
  - Mechanical takes coordination lead on Optimize Energy (also requires arch, elec)
- Team LEED-AP coordinates with all to ensure correct credit interpretations, complete documentation
- *Assign discipline responsibilities, coordinate regularly for holistic design development.*

SAS Technical Responsibilities Spreadsheet

EAPR1	Fundamental Commissioning of the Building Energy Systems (PREREQUISITE)	ALL	**Owner's Project Requirements document
		MECH, ELEC	**Basis of Design document for commissioned systems
		MECH, ELEC	**Commissioning Plan
		MECH	Verify CxA qualifications
		MECH	HVAC & controls, domestic water heating system, special system (see LEED Reference Guide) commissioning
		ELEC	Interior & exterior lighting controls, special system (see LEED Reference Guide) commissioning
EAPR2	Minimum Energy Performance (PREREQUISITE)	MECH	Mech contribution, coordinate with other disciplines
		ELEC	Elec contribution to compliance
		ARCH	Building envelope contribution to compliance
EAPR3	Fundamental Refrigerant Management (PREREQUISITE)	MECH	
EA1	Optimize Energy Performance	MECH	Mech contribution, coordinate with other disciplines
		ELEC	Elec contribution to compliance
		ARCH	Building envelope contribution to compliance

USGBC Registered Project?

- Starting FY09, Army projects must be registered and use LEED Letter Templates for LEED Documentation.
- Register project at beginning of design.
- Determine who will register project, who will administer registered project (control access privileges), and who will administer during construction.

USGBC Certified Project?

- Starting FY09, ACSIM will select a sample of Army projects to be certified by USGBC (hopefully PM for selected projects will be notified well in advance).
- Register project at beginning of design.
- Determine who will coordinate with USGBC on certification, who will pay certification fee.
- Determine whether interim review by USGBC at final design completion will be requested (recommended).

Resources: LEED-NC Reference Guide

- $110 ea at usgbc.org (member price)
- **Each Office Needs One**
- Intent, Requirements, Potential Technologies & Strategies PLUS
- Calculations, Submittal Documentation, References, Definitions, Exemplary Performance Innovation Credits
- Version 2.2, Third Edition is what we currently use
  - If you have an earlier edition of the LEED-NC Reference Guide, get Errata Sheet from usgbc.org

Resources: LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects (AGMBC)

- Free download at usgbc.org
- How to score projects with multiple buildings as a single project
- Aggregate credits (scored on whole job basis)
- Credits each individual building must earn
- Special scoring allowances/options/requirements for certain credits (CEP, consolidated open space, light pollution)
- Documentation for multiple building scoring
- AGMBC Cheat sheet at http:en.sas.usace.army.mil “Engineering Criteria”

Design Submittals

- Incorporate LEED requirements in drawings and specs.
- Include LEED Project Checklist, LEED documentation as separable part of Design Analysis.
- LEED design phase submittals must conform to LEED Documentation Requirements and Submittals Checklist (what and when due).
  - Excel spreadsheet located at http://en.sas.usace.army.mil, “Engineering Criteria”

LEED Documentation Requirements and Submittals Checklist - Drawings

LEED Credit Paragraph	Contractor Check Here if Credit is Claimed	LEED 2.2 Documentation Requirements and Submittals Checklist for Government-Validated Project		Provide for Credit Audit Only	
PAR		FEATURE	DUE AT		REQUIRED DOCUMENTATION
GENERAL					
		GENERAL - All calculations shall be in accordance with LEED 2.2 Reference Guide.			
		GENERAL: Obtain excel version of this spreadsheet at http://en.sas.usace.army.mil, "Engineering Criteria".			
		GENERAL - For all credits, narrative/comments may be added to describe special circumstances or considerations regarding the project's credit approach.			
		GENERAL - Include all required LEED drawings indicated below in contract drawings with applicable discipline drawings, labeled For Reference Only.			
		NOTE: Each submittal indicated with "*" differs from USGBC certified project submittals by either having a different due date or being an added submittal not USGBC.			
			Closeout		List of all Final Design submittals revised after final design to reflect actual closeout conditions. Revised Final Design submittals. - OR - Statement confirming that no changes have been made since final design that effect final design submittal documents.
CATEGORY 1 - SUSTAINABLE SITES					
SSPR1		Construction Activity Pollution Prevention (PREREQUISITE)	**Final Design		List of drawings and specifications that address the erosion control, particulate/dust control and sedimentation control measures to be implemented.
			**Final Design		Narrative that indicates which compliance path was used (NPDES or Local standards) and describes the measures to be implemented on the project. If a local standard was followed, provide specific information to demonstrate that the local standard is equal to or more stringent than the NPDES program.

LEED Documentation Requirements and Submittals Checklist – Materials Plans

- In DBB if designer is developing the strategy, Materials Plan is required at final design and should be attached to LEED DOCUMENTATION spec
- Edit LEED Documentation Requirements and Submittals Checklist attachment to LEED DOCUMENTATION spec to reflect Contractor or Designer

MR6		Rapidly Renewable Materials	Closeout		Statement indicating total materials value and whether default or actual.
			Closeout		Spreadsheet calculations indicating, for each rapidly renewable material, material name/description, manufacturer, cost, rapidly renewable content percent, rapidly renewable product value. Total rapidly renewable product value, rapidly renewable materials percentage.
			Final Design o NLT Preconstruction		**Implementation Strategy Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal.
			Closeout	X	Manufacturer published product data or certification confirming rapidly renewable material percentages in spreadsheet

(LEED Documentation & Submittals Checklist)

Materials Plans (MR credits)

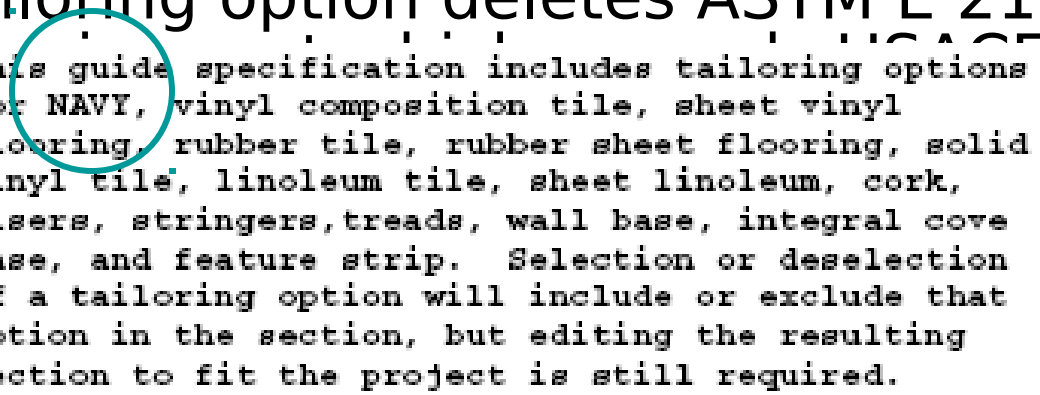
- **Always by Designer:**
  - **Rapidly Renewable Materials**
  - **Materials Reuse (incorporation of salvage)**
    - ***Designer specifies individual products to meet goal and prepares materials plan***
- **Always by Construction Contractor:**
  - **Regional Materials**
    - ***Contractor chooses products to meet goal and prepares materials plan***
- **Can Go Either Way:**
  - **Recycled Content**
  - **Certified Wood**

UFGS - Background

- 2006 joint USACE/Navy UFGS update began to add sustainable design/LEED language to UFGS.
- Needed to accommodate differences between USACE and Navy approach/desires
  - LEED Submittals: Navy - during construction (3rd party assembling documentation), USACE - big closeout submittal
  - Extent of “greening”: Navy many requirements beyond LEED, USACE only add LEED requirements
  - Performance versus prescriptive approach to some credits
- Updates are still ongoing (limited funding)

UFGS – Tailoring Option

- Navy Tailoring option (look in first specifier notes) and **deselect NAVY option**
  - Tailoring option automatically deletes the Navy in-progress submittals and adds USACE closeout submittals
  - Tailoring option automatically deletes product specs USACE was not comfortable with technically
  - Tailoring option deletes ASTM E 2129



This guide specification includes tailoring options for NAVY, vinyl composition tile, sheet vinyl flooring, rubber tile, rubber sheet flooring, solid vinyl tile, linoleum tile, sheet linoleum, cork, risers, stringers,treads, wall base, integral cove base, and feature strip. Selection or deselection of a tailoring option will include or exclude that option in the section, but editing the resulting section to fit the project is still required.

UFGS - Assumptions

- Added language was NOT vetted for availability and adequate competition. DO NOT assume that because it appears in the UFGS there are no **availability/competition issues**
  - Specifier notes were added to warn you

Use of materials with recycled content, calculated on the basis of post-industrial and post-consumer percentage content, contributes to the following LEED credit: MR4. Coordinate with Section 01 33 29 LEED(tm) DOCUMENTATION. Designer must verify suitability, availability and adequate competition (including verification of bracketed percentages included in this guide specification) before specifying product recycled content requirements.

UFGS Section 01 33 29 LEED DOCUMENTATION

- **DBB ONLY** – not suitable for DB
- Project achievement level, conformance to LEED
- Registration/LEED Letter Templates
- Implementation Plan, Closeout Notebook
- Contractor strategy options for Materials credits
- Coordination meetings (closeout)
- Attachment LEED Project Checklist

Further revisions are currently being prepared to add LEED Documentation & Submittals Checklist as attachment – do locally until then

Materials Implementation Plans

- Either designer develops strategy and specifies product by product or Contractor develops strategy

1.6.5 Materials and Resources Credit 7, Certified Wood

****

NOTE: Use the bracketed Contractor selection option if specific wood materials on the project have not been specified to be certified to meet the project goal. Using more than 50 percent of certified wood may contribute to the following LEED credit: ID1.

****

[Contractor shall select materials so that a minimum of [50][_____] percent (by dollar value) of permanently installed wood-based materials and products for the project are certified in accordance with FSC STD 01 001.]
[The following certified wood materials are specified so that a minimum of [50][_____] percent (by dollar value) of wood-based materials and products for the project are certified in accordance with FSC STD 01 001: [_____].]

(UFGS 01 33 29 LEED DOCUMENTATION)

UFGS – Regional Materials Credit

- USACE position is **DO NOT** specify regional sources on a product-by-product basis in technical sections. Require Contractor to develop and implement purchasing strategy for this credit in the LEED DOCUMENTATION section.
  - Specifier notes provide guidance

UFGS – Regional Materials Credit

- In a typical technical section:

1.6 SUSTAINABLE DESIGN REQUIREMENTS

1.6.1 Local/Regional Materials

****

NOTE: Using local materials can help minimize transportation impacts, including fossil fuel consumption, air pollution, and labor. Using materials harvested and manufactured within a 800 km (500 mile) radius from the project site contributes to the following LEED credit: MR5. Coordinate with Section 01 33 29 LEED(tm) DOCUMENTATION. Use second option if Contractor is choosing local materials in accordance with Section 01 33 29 LEED(tm) DOCUMENTATION. First option will not be used for USACE projects. Army projects will include second option only if pursuing this LEED credit.

****

[Use materials or products extracted, harvested, or recovered, as well as manufactured, within a [_____] [_____] km [500] [_____] mile radius from the project site, if available from a minimum of three sources.] [See Section 01 33 29 LEED(tm) DOCUMENTATION for cumulative total local material requirements. Flooring materials may be locally available.]

UFGS – Regional Materials Credit

- In LEED DOCUMENTATION

1.6.3 Materials and Resources Credit 5, Regional Materials

```
**************************************************************************
          NOTE:  Use the bracketed Contractor choice option if
          regional materials on the project have not been
          specified to meet the project goal.  The second
          bracketed option shall not be used on USACE
          projects.  Using more than 20 percent of local or
          regional materials may contribute to the following
          LEED credit: ID1.
**************************************************************************

 [Contractor shall select materials so that a minimum of [10][20][_____]
 percent (by dollar value) of materials and products for the project are
 extracted, harvested, or recovered, as well as manufactured, regionally
 within a 800 kilometer500 mile radius of the project site.]

 [The following technical sections include regional material requirements so
 that, if available, a minimum of [10][20][_____] percent (by dollar value)
 of materials and products for the project are extracted, harvested, or
 recovered, as well as manufactured, regionally within a 800 kilometer500
 mile radius of the project site: [_____].]
```

Recycled Content: EPA Comprehensive Procurement Guidelines (CPG)

- Mandatory for federal agencies
- If EPA designates a product, we must buy it with their recommended recycled content unless we have justification for non-use
- Contributes to LEED recycled content, but must always be done regardless of LEED
- UFGS 01 62 35 RECYCLED/RECOVERED MATERIALS – INCLUDE IN ALL PROJECTS
- Specify recycled content of EPA designated products even when Contractor Selection option is used for LEED recycled content credit.
- Example designated products: concrete, rigid and batt insulation, metal roofing

Recycled Content: EPA Comprehensive Procurement Guidelines (CPG)

- **Instructions on what to do are being added to UFGS 01 62 35 RECYCLED/ RECOVERED MATERIALS Specifier notes**

NOTE: Federal agencies are required to purchase products that, if listed on the EPA CPG, contain at least the recycled content indicated in the CPG when practicable. For construction projects, the designer must review the current CPG list and, unless designer determines that justification for non-use exists, ensure that the technical specifications for that product require at least the recycled content indicated in the CPG. The following are considered adequate justifications for non-use:

a. The product does not meet appropriate performance standards.

b. The product is not available within a reasonable time frame.

c. The product is not available competitively (from two or more sources).

d. The product is only available at an unreasonable price (compared with a comparable non-recycled content product).

Detailed information concerning EPA CPG requirements on recycled/recovered materials is available at the following URL's:

http://www.epa.gov/cpg/products/ and then click on the appropriate item from the list (building.htm for building insulation, for example).

Recycled Content: EPA Comprehensive Procurement Guidelines (CPG)

- **Specifier notes identifying EPA Designated products are being added to technical sections (ongoing)**

Shower and restroom partitions are EPA designated products for recycled content. See Section 01 62 35 RECYCLED/RECOVERED MATERIALS and include minimum recycled content unless designer determines that justification for non-use exists. EPA recycled content requirements must be addressed in all projects regardless of optional LEED/other recycled content goals. Designer must verify suitability, availability and adequate competition (including verification of bracketed percentages included in this guide specification) before specifying products meeting EPA minimum recycled content.

Special Construction Waste Management Requirements

- Currently UFGS 01 74 19 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT and UFGS 01 57 20.00 10 ENVIRONMENTAL PROTECTION both specify Waste Mgt Plan and they are not the same
- UFGS update to correct this, include SWAR requirement and coordinate reporting with LEED Letter Templates has been submitted (contact Judy for WORD version - see MT RFP version of ENVIRONMENTAL PROTECTION).

New Waste Management Paragraph in Several UFGS

- Specifier notes added to “reality check”
- Edit as needed regardless of brackets

3.16 WASTE MANAGEMENT

****

NOTE: Diverting waste from the landfill contributes to the following LEED credit: MR2. Coordinate with Section 02 42 00 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT. Designer will verify that items are able to be disposed of as specified.

****

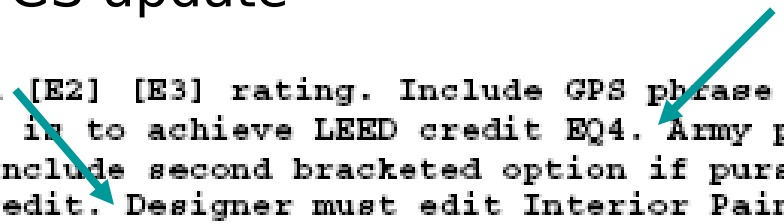
Separate offcuts and waste materials and reuse or recycle in accordance with the Waste Management Plan, keeping sheet materials larger than 0.2 square m 2 square feet and tiles larger than 1/2 tiles separate for reuse. Identify manufacturer's policy for collection or return of construction scrap, unused material, demolition scrap, and/or packaging material. [Shred scrap cork and linoleum for composting on site.]Place materials defined as hazardous or toxic waste in designated containers and dispose of properly. Close and seal tightly partly used sealant and adhesive containers and store protected in a well ventilated fire-safe area at moderate temperature.

UFGS: Fundamental Commissioning Prerequisite

- LEED Commissioning requires HVAC commissioning PLUS commissioning of
  - Lighting Controls
  - Domestic Water Heating
  - Special systems if provided (see LEED Reference Guide)
- Need to add non-HVAC commissioning requirements to specs (possible future UFGS update)
- Need to coordinate commissioning documentation for added items beyond HVAC
- NEED TO IDENTIFY, FUND CxA ACTIVITY INCLUDING PREPARATION OF COMMISSIONING REPORT AT CLOSEOUT

IEQ Low-Emitting Materials Credits

- UFGS contains language for paints
- Composite wood not included in UFGS
- Adhesives/sealants update done but not posted
- USACE bracket references LEED for VOC requirements, Navy bracket includes current LEED requirement at the time of the UFGS update



minimum [E2] [E3] rating. Include GPS phrase if project is to achieve LEED credit EQ4. Army projects shall include second bracketed option if pursuing this credit. Designer must edit Interior Paint Tables to include only products that are listed in the MPI Green Approved Products List, available at http://www.specifygreen.com/APL/ProductIdxByMPInum.asp if pursuing this credit.

****

All DFT's are minimum values.[Use only materials [with a GPS green check mark] having a minimum MPI "Environmentally Friendly" [E1] [E2] [E3] rating based on VOC (EPA Method 24) content levels.][Use only interior paints and coatings that meet VOC requirements of LEED low emitting materials credit.] Acceptable products are listed in the MPI Green Approved Products List, available at http://www.specifygreen.com/APL/ProductIdxByMPInum.asp.

Construction IAQ Management Credits

- Flushout/IAQ testing was in LEED DOCUMENTATION section. Removed (Navy to create a new spec) – new section never posted
- Recommend put back in LEED DOCUMENTATION section until new spec materializes
- Contractor creates IAQ Mgt During Construction Plan
  - HVAC Protection
  - Source Control
  - Pathway Interruption
  - Housekeeping
  - Scheduling
- Some UFGS updates include text for requirements related to this plan (but will not by themselves meet credit requirement)

at temperatures between 4 to 35 degrees C 40 to 95 degrees F. Do not store paint, polyurethane, varnish, or wood stain products with materials that have a high capacity to adsorb VOC emissions, [including _____]. Do not

UFGS Updates

- Limited HQUSACE funding available
- We need to share what we develop locally
- CCR system is broken (for this)
- Send to Judy for implementation through HQ (changes must be coordinated with other UFGS agencies)

AE Instructions

- USACE Army LEED Implementation Guide – incorporate by reference in all contracts
  - Planning Charette
  - Code 3
  - RFP Preparation
  - Full Design
- For each project provide guidance on project LEED registration/administration/certification requirement

Technical Reviews

- Same division of responsibilities as for design (if no LEED AP, assign overall items)
- Confirm completeness of LEED documentation
- Confirm inclusion of requirements in plans and specs
- Check for inconsistencies between LEED documentation and plans and specs
- Check coordination of Materials Implementation Plans & specs

MT RFP does NOT require use of UFGS for DB post-award design documents

LEED Accredited Professional

- Study LEED Reference Guide, take 2 hour test
- USGBC also offers workshops
- All multiple choice questions
- Local testing centers (Prometric)
- Costs $300 to take test, Government can reimburse you if you pass (similar to professional registration testing – coordinate with supervisor beforehand)
- Coming Spring/Summer 2009: 2 tests (LEED Associate, LEED AP),CEU requirement, biannual fee requirement

Each design team is required to have a LEED-AP. This includes in-house design teams!

Questions, Feedback

- Responsibilities, Registration, Resources
- Design Submittals
- UFGS
- AE Instructions
- Technical Reviews
- LEED AP